AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) ~~Method~~ A method for ~~deciding~~ determining the direction of ~~to~~ a flickering source in relation to a measurement point in an electrical network ~~with alternating current with a network frequency (f_e) with low-frequency amplitude variations from the flickering source~~, the method comprising the steps:

- recording at a measuring point ~~, recording~~ an amplitude-modulated current signal ($i(n)$) comprising signals that originate from the network frequency (f_c) and ~~the~~ low-frequency amplitude variations in the current signal ($i(n)$);

- recording at a measuring point ~~, recording~~ an amplitude-modulated voltage signal ($u(n)$) comprising signals that originate from the network frequency (f_c) and ~~the~~ low-frequency amplitude variations in the voltage signal ($u(n)$);

- demodulating the current signal ($i(n)$) and extracting, from the demodulated current signal, only the low-frequency amplitude variations in the form of a flicker component for the current signal ($i(n)$);

- demodulating the voltage signal ($u(n)$) and extracting, from the demodulated voltage signal, only the low-

2

frequency amplitude variations in the form of a flicker component

for the voltage signal (u(n));

      - creating a product by multiplication of the flicker

component for the current signal and the flicker component for

the voltage signal;

      - creating one of an average value of the instantaneous

power signal ($\Pi(n)$) and a summation of the partial powers $Pk_{\text{,}}$

wherein a flicker power (Π) is obtained with a sign value that

indicates ~~in which~~ the direction the flickering source is located

in relation to the measurement point; and

      - displaying an indication of ~~which~~ the direction that

the flickering source is located in relation to the measurement

point, wherein,

      - said ~~demodulation of~~ demodulating the current signal

~~step~~ comprises the steps:

      - ~~creation of~~ creating a first demodulated signal by

~~demodulation of~~ demodulating the current signal (i(n)); and

      - filtering, by one of a band pass ~~filer~~ filter and a

multiplication of weight distribution factors, the first

demodulated signal to eliminate the signals that originate from

the network frequency (f_c) in the first demodulated signal so

that only the low-frequency variations remain in the form of the

flicker component for current, and

      - said ~~demodulation of~~ demodulating the voltage signal

(u(n)) ~~step~~ comprises the steps:

3

- creating a second demodulated signal by demodulation of the voltage signal; and

- filtering, by one of a band pass ~~filer~~ <u>filter</u> and a multiplication of weight distribution factors, the second demodulated signal to eliminate the signals that originate from the network frequency in the second demodulated signal so that only the low-frequency variations remain in the form of the flicker component for voltage.

2. (currently amended) ~~Method according to~~ <u>The method of</u> Claim 1, wherein the sign value of the flicker power is negative when the flickering source is located below (19) the measurement point (17) and the sign value is positive when the flickering source is located above (18) the measurement point (17).

3. (canceled)

4. (currently amended) ~~Method according to~~ <u>The method of</u> Claim 1, comprising the further steps of:

- filtering the signals that originate from the network frequency (f_c) in the first demodulated signal ~~in such a way~~ <u>so</u> that only the low-frequency variations relating to the flicker component for current remain in the form of a flicker signal ($I_{LF(n)}$) for current;

- filtering the signals that originate from the network frequency in the second demodulated signal ~~in such a way~~ <u>so</u> that the low-frequency variations relating to the flicker component for voltage remain in the form of a flicker signal ($U_{LF(n)}$) for voltage;

- creating an instantaneous power signal ($\Pi(n)$) by forming a product by multiplication of the flicker signal ($I_{LF(n)}$) for current and the flicker signal ($U_{LF(n)}$) for voltage; and

- processing the product to create the average value of the instantaneous power signal ($\Pi(n)$) whereby the flicker power (Π) is created with the sign value.

5. (currently amended) ~~Method according to~~ <u>The method of</u> claim 1, wherein,

- creating the first demodulated signal is by square demodulation of the current signal; and

- creating the second demodulated signal is by square demodulation of the voltage signal.

6. (currently amended) ~~Method according to~~ <u>The method of</u> claim 1, wherein, the filtering <u>for current</u> is carried out with a bandpass filter with a lower limit of 0.1 Hz and an upper limit of 35 Hz.

7. (currently amended) ~~Method for diagnostics~~ A method of diagnosing at a measurement point in an electrical network ~~with alternating current with a network frequency (f_e) with low-frequency amplitude variations from a flickering source~~, the method comprising the steps of:

- recording an amplitude-modulated current signal (i(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the current signal (i(n));

- recording an amplitude-modulated voltage signal (u(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the voltage signal (u(n));

- analyzing the frequency of the wave form of the voltage signal (u(n)) by an N-point DFT analysis (Discrete Fourier Transform), to determine a voltage vector (U) ~~which contains~~ containing the frequency spectrum for the voltage signal (u(n)) in the form of N complex voltages, each of the N complex voltages corresponding to a different frequency;

- analyzing the frequency of the wave form of the current signal (i(n)) by an N-point DFT analysis (Discrete Fourier Transform), to determine a current vector (I) ~~which contains~~ containing the frequency spectrum for the current signal (i(n)) in the form of N complex currents, each of the N complex currents corresponding to a different frequency;

- creating a power vector (P) by multiplying, <u>for each</u> <u>frequency</u> ~~element by element~~, ~~of~~ <u>a corresponding one of the N</u> <u>complex voltages of</u> the voltage vector (U) ~~and~~ <u>with a</u> <u>corresponding one of the N complex currents of</u> the current vector (I);

- <u>eliminating the power component originating from the</u> <u>network frequency from the power vector (P) by</u> multiplying the power vector (P) by a weighting vector (W) ~~that eliminates the~~ ~~power component that originates originating from the network~~ ~~frequency, with~~ <u>so that</u> the power vector (P)<u>, after the</u> <u>multiplication, comprises</u> ~~comprising~~ partial powers (P_k) concerning power components from the flickering source;

- creating a flicker power (Π) with a sign value by summation of the partial powers (P_k);

- analyzing the sign value, with the sign value indicating ~~in which~~ <u>the</u> direction<u>,</u> from the measurement point<u>,</u> the flickering source is to be found; and

- displaying an indication of ~~which~~ <u>the</u> direction <u>that</u> the flickering source is located in relation to the measurement point.

8. (currently amended) ~~Method according to~~ <u>The method</u> <u>of</u> Claim 6, wherein the flicker power (Π) is created by the following step:

- summing the partial powers (P_k) by the formula:

$$\Pi = \sum_{k=1}^{N} \text{Re}\left\{\frac{1}{2} W_k \cdot U_k \cdot I_k^*\right\}$$

9. (currently amended) ~~Method according to~~ The method of Claim 6, wherein the flicker power (Π) is created by the following steps:

- square-demodulation (x^2) of the voltage signal ($u(n)$);

- square-demodulation (x^2) of the current signal ($i(n)$);

- calculating the frequency spectrum of the square-demodulated voltage signal by an N-point DFT analysis (Discrete Fourier Transform) to determine the voltage vector (U);

- calculating the frequency spectrum of the square-demodulated current signal by an N-point DFT analysis (Discrete Fourier Transform) to determine the current vector (I); and

- creating the flicker power (Π) by summation of the partial powers (P_k) ~~which contribute~~ contributing to the flicker phenomenon by the formula:

$$\Pi = \sum_{k=1}^{N} \text{Re}\left\{\frac{1}{2} w1_k \cdot U_k \cdot w2_k \cdot I_k^*\right\}$$

where the elements $w1_k$ and $w2_k$ ~~replace W and~~ eliminate the power component ~~that originates~~ originating from the network

8

frequency and weight the correct amplitudes of the frequency components U_k and I_k, in accordance with:

$$w1_k = \begin{cases} \dfrac{1}{U_c} & \text{for } 1 \leq k \leq i \\ 0 & \text{for } k > i \end{cases}$$

$$w2_k = \begin{cases} \dfrac{1}{I_c} & \text{for } 1 \leq k \leq i \\ 0 & \text{for } k > i \end{cases}$$

where the low-frequency flickers are to be found in a frequency band up to and including tone i $(0 < f_{flicker} \leq i)$.

10. (canceled)

11. (currently amended) ~~Arrangement~~ An arrangement for deciding the direction to a flickering source in relation to a measurement point in an electricity network ~~with alternating current with a network frequency (f_e) with low-frequency amplitude variations from the flickering source~~, the arrangement comprising:

- a first recorder for recording an amplitude-modulated current signal (i(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the current signal (i(n));

- a second recorder for recording an amplitude-modulated voltage signal (u(n)) comprising signals that originate

9

from the network frequency (f_c) and the low-frequency amplitude variations in the voltage signal (u(n));

- a first signal processor for demodulating the current signal (i(n)) and extracting, from the demodulated current signal, only the low-frequency amplitude variations in the form of a flicker component for the current signal (i(n));

- a second signal processor for demodulating the voltage signal (u(n)) and extracting, from the demodulated voltage signal, only the low-frequency amplitude variations in the form of a flicker component for the voltage signal (u(n));

- a multiplier for creating a product by multiplication of the flicker component for current and the flicker component for voltage;

- a processor for processing the product to create one of an average value of the instantaneous power signal (Π(n)) and a summation of the partial powers Pk wherein a flicker power (Π) is obtained with a sign value that indicates ~~in which~~ the direction the flickering source is located in relation to the measurement point; and

- a display for displaying an indication of the ~~which~~ direction that the flickering source is located in relation to the measurement point, wherein,

- the first signal processor for signal processing of the current signal (i(n)) comprises:

- a first part for creating a first demodulated signal by means of demodulation of the current signal (i(n));

- a second for filtering to remove the signals that originate from the network frequency (f_c) in the first demodulated signal so that only the low-frequency variations remain in the form of the flicker component for current;

- the means for signal processing of the current signal (i(n)), comprises:

- means for creating a second demodulated signal by means of demodulation of the voltage signal;

- a second signal processor for filtering to remove the signals that originate from the network frequency in the second demodulated signal so that only the low-frequency variations remain in the form of the flicker component for voltage.

12. (currently amended) ~~Arrangement~~ An arrangement for diagnostics at a measurement point in an electrical network ~~with alternating current with a network frequency (f_c) with low-frequency amplitude variations from a flickering source~~, the arrangement comprising:

- a first recorder for recording an amplitude-modulated current signal (i(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the current signal (i(n));

11

- a second recorder for recording an amplitude-modulated voltage signal (u(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the voltage signal (u(n));

- a first signal processor for frequency analysis of the wave form of the voltage signal (u(n)) by an N-point DFT analysis (Discrete Fourier Transform), to determine a voltage vector (U) ~~which contains~~ containing the frequency spectrum for the voltage signal (u(n)) in the form of N complex voltages, each of the N complex voltages corresponding to a different frequency;

- a second signal processor for frequency analysis of the wave form of the current signal (i(n)) by an N-point DFT analysis (Discrete Fourier Transform), to determine a current vector I ~~which contains~~ containing the frequency spectrum for the current signal (i(n)) in the form of N complex currents, each of the N complex currents corresponding to a different frequency;

- a multiplier for the creation of a power vector (P) by the multiplication, at each frequency, ~~element by element,~~ of a corresponding one of the N complex voltages of the voltage vector (U) ~~and~~ with a corresponding one of the N complex currents of the current vector (I);

- a first processor for the multiplication of the power vector (P) by a weighting vector (W) ~~that eliminates~~ to eliminate the power component ~~that originates~~ originating from the network frequency ~~, with~~ so that the power vector (P), after the

12

multiplication, comprises ~~comprising~~ partial powers (P_k) concerning power components from the flickering source;

- a second processor for the creation of a flicker power (Π) with a sign value, by summation of the partial powers (P_k);

- an analyzer for analysis of the sign value, with the sign value indicating ~~in which~~ the direction, from the measurement point, the flickering source is to be found; and

- a display for displaying an indication of that ~~which~~ direction that the flickering source is located in relation to the measurement point, wherein,

- the first signal processor is configured to execute the steps of:

- creating a first demodulated signal by demodulation of the current signal ($i(n)$), and

- filtering to eliminate the signals that originate from the network frequency (f_c) in the first demodulated signal so that only the low-frequency variations remain in the form of the flicker component for current,

- the second signal processor is configured to execute the steps of:

- creating a second demodulated signal by demodulation of the voltage signal;

- filtering to eliminate the signals that originate from the network frequency in the second demodulated signal so

13

that only the low-frequency variations remain in the form of the flicker component for voltage.

13. (currently amended) ~~Method~~ A method for ~~deciding~~ determining the direction of ~~to~~ a flickering source in relation to a measurement point in an electrical network ~~with alternating current with a network frequency (f_e) with low-frequency amplitude variations from the flickering source~~, the method comprising the steps:

- recording at a measuring point ~~, recording~~ an amplitude-modulated current signal (i(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the current signal (i(n));

- recording at a measuring point ~~, recording~~ an amplitude-modulated voltage signal (u(n)) comprising signals that originate from the network frequency (f_c) and the low-frequency amplitude variations in the voltage signal (u(n));

- demodulating the current signal (i(n)) and extracting, from the demodulated current signal, only the low-frequency amplitude variations in the form of a flicker component for the current signal (i(n));

- demodulating the voltage signal (u(n)) and extracting, from the demodulated voltage signal, only the low-frequency amplitude variations in the form of a flicker component for the voltage signal (u(n));

14

- creating a product by multiplication of the flicker

component for the current signal and the flicker component for

the voltage signal;

- creating one of an average value of the instantaneous

power signal ($\Pi(n)$) and a summation of the partial powers Pk

wherein a flicker power (Π) is obtained with a sign value that

indicates ~~in which~~ the direction the flickering source is located

in relation to the measurement point; and

- displaying an indication of ~~which~~ the direction that

the flickering source is located in relation to the measurement

point,

wherein the sign value of the flicker power is negative

when the flickering source is located below (19) the measurement

point (17) and the sign value is positive when the flickering

source is located above (18) the measurement point (17), and

wherein,

- the ~~signal processing~~ demodulating of the current

signal (i(n)) comprises the steps of:

- creating a first demodulated signal by demodulation

of the current signal (i(n));

- filtering to eliminate the signals that originate

from the network frequency (f_c) in the first demodulated signal

so that only the low-frequency variations remain in the form of

the flicker component for current;

- the ~~signal processing~~ demodulating of the voltage signal (u(n)) comprises the steps of:

- creating a second demodulated signal by demodulation of the voltage signal; and

- filtering to eliminate the signals that originate from the network frequency in the second demodulated signal so that only the low-frequency variations remain in the form of the flicker component for voltage.

14. (currently amended) ~~Method according to~~ The method of claim 4, wherein,

- creating the first demodulated signal by square demodulation of the current signal; and

- creating the second demodulated signal by square demodulation of the voltage signal.

15. (currently amended) ~~Method according to~~ The method of claim 4, wherein,

the filtering for current is carried out with a bandpass filter with a lower limit of 0.1 Hz and an upper limit of 35 Hz.

16. (currently amended) ~~Method according to~~ The method of claim 1, wherein, the filtering for current is carried out

with a bandpass filter with a lower limit of 0.1 Hz and an upper limit of 25 Hz.

17. (currently amended) ~~Method according to~~ The method of claim 4, wherein, the filtering for current is carried out with a bandpass filter with a lower limit of 0.1 Hz and an upper limit of 25 Hz.